

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously amended) A perforated tray without downcomer provided with a plurality of holes, wherein

each of the plurality of holes has a diameter d in a range of from 10mm to 25mm,

each of the plurality of holes is separated from an adjacent hole by a center-to-center distance in a range of from $1.2d$ to $3d$,

the perforated tray without downcomer has a thickness in a range of from 2mm to 8mm, and

the perforated tray without downcomer has an opening ratio in a range of from 10% to 30%,

wherein multiple perforated trays without downcomer are used at the same stage in a perforated tray tower without downcomer, and the two most closely located holes of any respective adjacent perforated trays without downcomer are separated by a distance between 50mm and 150mm.

2. (Previously amended) The perforated tray without downcomer as defined in claim 1, wherein

the perforated tray without downcomer has a flat surface, and

each of the plurality of holes has an edge fabricated into a round surface at least either on an upper side of the edge or on a lower side of the edge.

3. (Previously amended) A perforated tray without downcomer in a perforated tray tower without downcomer;

said tower comprising a plurality of perforated trays without downcomer disposed respectively at a plurality of stages, each of the plurality of perforated trays without downcomer being provided with a plurality of holes, wherein

each of the plurality of holes has a diameter d in a range of from 10mm to 25mm, and each of the plurality of holes is separated from an adjacent hole by a center-to-center distance in a range of from $1.2d$ to $3d$,

wherein, when two or more of the plurality of perforated trays without downcomer are used at the same stage, the two most closely located holes that respectively belong to adjacent perforated trays are separated from one another by a center-to-center distance in a range of from 50mm to 150mm.

4. (Previously amended) A perforated tray tower without downcomer, comprising a plurality of perforated trays without downcomer disposed respectively at a plurality of stages, each of the plurality of perforated trays without downcomer being provided with a plurality of holes, wherein

each of the plurality of holes has a diameter d in a range of from 10mm to 25mm,

the perforated tray without downcomer has a thickness in a range of from 2mm to 8mm,

the perforated tray without downcomer has an opening ratio in a range of from 10% to 30%, and

each of the plurality of holes is separated from an adjacent hole by a center-to-center distance in a range of from $1.2d$ to $3d$,

wherein, when two or more of the plurality of perforated trays without downcomer are used at the same stage, the two most closely located holes that respectively belong to adjacent perforated trays are separated from one another by a center-to-center distance in a range of from 50mm to 150mm.

5. (Original) The perforated tray tower without downcomer as defined in claim 4, wherein

the plurality of perforated trays without downcomer disposed respectively at vertically adjacent spacing are separated by a distance in a range of from $0.1D$ to $0.5D$ where D is a tower diameter, and

each of the plurality of perforated trays without downcomer has a levelness not exceeding 8mm.

6. (Canceled)

7. (Previously amended) The perforated tray tower without downcomer according to claim 4, wherein

the plurality of perforated trays without downcomer disposed respectively at vertically adjacent spacing have a blind ratio of not less than 0.2 and not more than 1.

8. (Canceled)

9. (Currently amended) A method of distillation, comprising the steps of: providing [[distilling an easily polymerizable compound or a liquid containing an easily polymerizable compound, using]] a perforated tray tower without downcomer, comprising a plurality of perforated trays without downcomer disposed respectively at a plurality of stages, each of the plurality of perforated trays without downcomer being provided with a plurality of holes, wherein each of the plurality of holes has a diameter d in a range of from 10mm to 25mm, the perforated tray without downcomer has a thickness in a range of from 2mm to 8mm, the perforated tray without downcomer has an opening ratio in a range of from 10% to 30%, and each of the plurality of holes is separated from an adjacent hole by a center-to-center distance in a range of from 1.2d to 3d, wherein, when two or more of the plurality of perforated trays without downcomer are used at the same stage, the two most closely located holes that respectively belong to adjacent perforated trays are separated from one another by a center-to-center distance in a range of from 50mm to 150mm;

providing an easily polymerizable compound or a liquid containing an easily polymerizable compound; and

distilling the easily polymerizable compound or a liquid containing an easily polymerizable compound, using the perforated tray tower.

10. (Currently amended) The method of distillation as defined in claim 9, [[wherein]] further comprising carrying out the distilling step [[is carried out]] under at least one of first and second conditions,

the first condition being such that an amount of wetting liquid with respect to a cross-sectional area of the tower is at least $0.3\text{m}^3/\text{m}^2 \cdot \text{h}$, and

the second condition being such that an amount of wetting liquid with respect to a sum of areas of the plurality of holes is at least $1\text{m}^3/\text{m}^2 \cdot \text{h}$.

11. (Canceled)

12. (Previously amended) The method of distillation as defined in claim 9, wherein

the easily polymerizable compound is at least one compound selected from the group consisting of (meth)acrylic acid and esters thereof.

13. (Canceled)

14. (Previously added) A method of distillation, comprising the step of distilling an easily polymerizable compound or a liquid containing an easily polymerizable compound, the compound being at least one compound selected from the group consisting of (meth)acrylic acid and esters thereof,

wherein a plurality of perforated trays without downcomer are disposed respectively at a plurality of stages, each of the plurality of perforated trays without downcomer being provided with a plurality of holes;

each of the plurality of holes has a diameter d in a range of from 10mm to 25mm;

each of the plurality of perforated trays without downcomer has a thickness in a range of from 2mm to 8mm;

each of the plurality of perforated trays without downcomer has an opening ratio in a range of from 10% to 30%; and

MIZUTANI, et al.
SERIAL NO. 09/506,713
Page 6 of 12

each of the plurality of holes is separated from an adjacent hole by a center-to-center distance in a range of from 1.2d to 3d.